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APPLICATION THAT MET THE REQUIREMENTS TO BE GRANTED A
FILING DATE UNDER 35 USC 111.**

APPLICATION NUMBER: 60/118,189

FILING DATE: February 01, 1999

PCT APPLICATION NUMBER: PCT/US00/02222

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Provisional Application

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Date of Deposit: **February 1, 1999**

I hereby certify that this is being deposited with the United States Postal Service "Express Mail, Post Office to Addressee" service under 37 CFR 1.10 on the date indicated above and is addressed to Box: Provisional Patent Application, The Assistant Commissioner for Patents, Washington, D.C. 20231.

By:

Elmer Galbi

Elmer Galbi, Reg. No. 19,761
13314 Vermeer Drive, Lake Oswego, OR 97035
Phone 503-697-7844

Cover Sheet and Letter of Transmittal

Box: Provisional Patent Application
Commissioner of Patents and Trademarks
Washington, D.C. 20231

Dear Sir:

Please file these documents as a **PROVISIONAL APPLICATION** under 35 U.S.C §111 (b).

The inventor's names and residence addresses are:

Jonathan Ehrlich

150 Highbourne Avenue, Upper Apartment, Toronto, Ontario CANADA M5P2J7
Nationality: Canadian

James Rose

1473 Shotwell Street, San Francisco, CA, 94110, Nationality: USA

Salim Teja

4 Park Vista Drive, Apartment 904, Toronto, Ontario, CANADA, M4B3M8
Nationality: Canadian

Benoit Turgeon

104 Hambly Ave, King City, Ontario, Canada L7B 1J1, Nationality Canadian

The title of the Invention is: **Aggregating On-Line Purchase Requests**

Attorney Docket Number is: **EWG-086**,

Attorney name: **Elmer Galbi**, Attorney Registration number 19,761

This invention was not made under contract with an agency of the U.S. Government.

Please address all correspondence concerning this Provisional Application to:

Elmer Galbi

13314 Vermeer Drive

Lake Oswego, Oregon 97035

Telephone Contact: **503-697-7844**

Enclosed are:

- 1) A specification describing the invention 21 pages and twelve drawings.
- 2) A check for \$150.00 (EWG # 2487) covering the filing fee.
- 3) A return card for filing notification.

Please charge any deficiency in the enclosed fee (or credit any overpayment) to Deposit account 500,433 which is in the name of Elmer Galbi.

Respectfully submitted,

Elmer Galbi

Elmer Galbi (Reg. No 19,761)

13314 Vermeer Drive,
Lake Oswego, OR 97035

Phone 503-697-7844

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60/118189

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1 can purchase at a volume price. The price paid is based on the number of members
 2 in the group. This is done without the members of each temporary group having any
 3 interaction with each other and without the members of each temporary group
 4 knowing anything about the other members of the temporary group. The price at
 5 which products are sold is based upon the number of individuals that join each
 6 particular group. By aggregating individual purchasers into temporary buying groups
 7 on a real time basis, the invention reduces supplier sales and marketing costs. The
 8 present invention provides a "just in time demand system" which has advantages
 9 that are somewhat similar to the those of the widely used just in time supply systems.
 10 The invention operates in several steps which are termed a "buy cycle". In the first
 11 step a product description is posted on a web page. The web page also lists a price
 12 schedule which specifies a series of prices based upon the number of purchasers for
 13 the product. Prospective purchasers then enter their orders via the internet. A
 14 counter on the web page shows the number of purchasers who have entered orders.
 15 A buy cycle is closed based upon a pre-established criteria such as after a fixed
 16 period of time, after a preset number of orders have been submitted, or after a
 17 criteria which taken into consideration the rate at which orders are being received.
 18 After a buy cycle is closed the orders are process, products are shipped to the
 19 customers and the customers credit cards are charged.

20

21 **Brief Description of the Drawings:**

- 22 Figure 1 shows the layout of a web page.
- 23 Figure 2 shows a flow diagram of the membership process.
- 24 Figure 3 shows a flow diagram of the decision guide process.
- 25 Figure 4 shows a flow diagram of beginning a buy cycle.
- 26 Figure 5 shows flow diarg of the end of a buy cycle.

- 1 Figure 6 shows the watchdog cycle.
- 2 Figure 7 shows the opening of a buy cycle.
- 3 Figure 8 shows the no slice subroutine.
- 4 Figure 9 shows the maximum buy subroutine.
- 5 Figure 10 shows the current buy subroutine.
- 6 Figure 11 shows the price buy cycle.
- 7 Figure 12 shows the current price subroutine.

8

9 **Detailed Description of a Preferred embodiment:**

10 The preferred embodiment of the present invention provides a web site which gives
11 purchaser's (i.e. customers) a "just in time" demand experience. Prospective
12 purchasers who visit the web site are provided with decision tools and product
13 information necessary to make intelligent purchasing decisions. Once a product is
14 selected, customers are presented with a price schedule based on volume levels.
15 Customers may simply purchase at the posted price or launch a buying cycle.

16

17 A buying cycle is a purchasing cycle that aggregates demand for a particular product
18 within a given period of time. Buying cycles are take into account two types of
19 purchase behaviors:

- 20 1. Destination demand – customers who come specifically to purchase a product
- 21 2. Latent demand – those customers who have previously provided buying profiles
22 and wish to be notified when certain purchasing requirements are met. These
23 customers are notified via email when their requirements are matched.

24

25 At the time a customer joins a buying cycle, the customer is made aware of the
26 MAXIMUM price they would have to pay should no other customers join that cycle.

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1 As additional customers join the buying cycle, the unit price declines. With the
2 present invention buyers work together instead of against each other. In online
3 auctions customers bid against each other. Once a buying cycle is closed, the
4 system completes the transaction in a conventional manner by processing orders
5 based on the volume attained.

6
7 The invention is implemented by means of application program which runs on a
8 conventional web server. The web server can be any of the conventionally used web
9 servers such as those marketed by Sun Microsystems Corporation or those marketed
10 by the Microsoft Corporation. Such servers operate under a system control program
11 which in turn calls an application program. For example the Microsoft IIS 4.0 Web
12 Server program has an associated Microsoft Site Server program that provides basic
13 cataloging functionality, order processing capability and a transaction pipeline which
14 performs such operations as calculating tax due, and credit card verification. The
15 preferred embodiment of the invention as described herein is implemented as an
16 application program or web site operating under a server operating system.

17
18 The web site which implements the present invention includes a number of linked
19 web pages and a computer program which implements various functions required in
20 order to implement the invention. The web site is conventional except for the specific
21 functions described herein. The manner in which the web pages are accessed and
22 the manner in which the program described below is integrated into the site
23 operating system are conventional and thus they are not specifically described
24 herein. Reference is made to text books such as the following for a description of
25 how web sites are implemented and for a description of how application programs
26 are operated on a web site:

1 includes a web page (not explicitly shown herein) which includes fields in which a
 2 customer can enter registration information. As indicated by blocks 21 and 22,
 3 advertisements or word of mouth brings prospective customers to a home page (or
 4 entry point) 23 on the web site. The home page 23 describes the system and
 5 provides a mechanism for prospective customers to indicate that they would like to
 6 register for use of the site. Prospective customers can either register as "guests"
 7 without payment of any fee or as "members" which requires payment of a fee. As
 8 will be explained later, customers who pay a membership fee and register as
 9 members obtain certain privileges. Web sites which allow for both guests (at no fee)
 10 and members (with the payment of a fee) are conventional. As indicated by block
 11 24, both guests and prospective members provide information which is collected to
 12 generate a profile 25. If a member or guest orders a product, the information in their
 13 profile is used to bill their credit card as shown by block 26. Such operations are
 14 conventional.

15
 16 After a prospective customer has registered as either a member or as a guest as
 17 described above, the customer can login as indicated by block 31 in figure 3. As
 18 indicated by block 33, once a customer has logged into the system they are provided
 19 with a "solutions guide" web page 33 which helps the customer pick an appropriate
 20 product. The solutions guide web page 33 includes hyperlinks to buying preferences
 21 survey web page 32 and a review and rating web page 34. As a result of the help
 22 provided by web page 33, the customer makes a choice as indicated by block 35. If
 23 the customer's choice is for a product that already has an active buy cycle, the
 24 customer's choice results in an order in that buy cycle as indicated by block 36. If
 25 the customer's choice is not a product which has an active buy cycle, a buy cycle is
 26 initiated as indicated by block 37. At a pre-established time, the buy cycle closes as

1 indicted by block 38 and the product is shipped and the customer is charged as
2 indicated by block 39.

3

4 Figures 4 to 12 give detailed program flow diagrams of the programs that operate
5 during a buy cycle. Once a buying cycle starts, a series of individual purchase
6 requests are collected by a central server referred to herein as the primary
7 aggregation server. Instead of having one primary aggregation server, individual
8 purchase requests can be collected by a number of distributed secondary
9 aggregation servers. That is, the individual purchase requests can be collected by a
10 number of remote computers linked to an aggregation server through a
11 communication link.

12

13 Buy-cycles can be started at any time\ Buy cycles end when a preset number of
14 purchase requests have been exceeded, or if a preset time limit has elapsed. Prior
15 to the start of a buy cycle, a price-point structure is set by a system administrator (not
16 shown). The system administrator sets a minimum and maximum number of
17 purchase requests for each price point and this information is listed on the order web
18 page 2. Prospective customers therefore have accurate price information at all times
19 time during the buy-cycle. As each purchase request is entered and validated into
20 the aggregation server during the buy-cycle, a counter is incremented (or
21 decremented) identify the current number of purchase requests. When the buy-cycle
22 closes, the counter is consulted to establish the final price attributed to the buy-cycle.

23

24 Each buy-cycle relates to a particular item for sale with a price structure constructed
25 as follows:

1 **Table A.1: Price Structure Construction**

Slice Number	Number of Items		Price
	Minimum	Maximum	
0	$n_0=0$	n_1-1	P_0
1	n_1	n_2-1	P_1
2	n_2	n_3-1	P_2
3	n_3	n_4-1	P_3
$m-1$	n_{m-1}	n_m	P_{m-1}

2

3

4 The price structure is divided into " m " price slices, each with a corresponding price
 5 " P_m ". For each price slice, there is a minimum number of items for sale " n_m " and a
 6 maximum number of items " $n_{m-1}-1$ ". A representative example is as follows: :

7

8 **Table A.2: Price Structure for Sample Buy-Cycle**

Slice Number	Number of Items		Price
	Minimum	Maximum	
0	0	3	\$10.00
1	4	9	\$9.75
2	10	11	\$9.00
3	12	49	\$8.00
4	50	199	\$6.50

9

10 **Note:**

- 1 1.By definition, a price structure as at least two (2) price slices.
- 2 2.The largest maximum number of items for the last price slice corresponds to the
- 3 cut-off point, which, if reached, will end the buy-cycle.
- 4
- 5 In order to manage buy-cycles, the following operations are defined. Each buy-cycle
- 6 is identified through a unique buy-cycle identifier called `buy_cycle_id`.
- 7 1. Begin (`buy_cycle_id,time_t`), which initializes and starts a buy-cycle that will last
- 8 until `time_t`,
- 9 2. End(`buy_cycle_id`), which terminates the buy-cycle either manually or by being
- 10 called from the buy-cycle watchdog, and
- 11 3. Watchdog(`buy_cycle_id`), which automatically supervises the status of a selected
- 12 buy-cycle.
- 13
- 14 The following operators are defined to determine state information about buy-cycles:
- 15 1. Open(`buy_cycle_id`), which returns a boolean result on whether or not the buy-
- 16 cycle referenced by the unique buy-cycle identifier `buy_cycle_id` is active,
- 17 2. No_slice(`buy_cycle_id`), which returns the number of slices `m` for the specified
- 18 buy-cycle,
- 19 3. Max(`buy_cycle_id`), which returns `nm` for the specified buy-cycle,
- 20 4. Current(`buy_cycle_id`), which returns the current number of purchase requests for
- 21 the buy-cycle, represented as `ncurrent`,
- 22 5. Price(`buy_cycle_id,n`), which returns the price point for the specified cycle with `n`
- 23 purchase requests, and
- 24 6. Price_current(`buy_cycle_id`)---the logical equivalent of
- 25 price(`buy_cycle_id,n_current`), which returns the price point corresponding to
- 26 the current number of purchase requests.

1

2 Figure 4 shows the process that is called whenever a defined buy-cycle needs to be
 3 set into active mode. For example this could occur as indicated by box 37 in Figure
 4 3. As indicated by block 210, a subroutine named open() and which is shown in
 5 Figure 7 determines if the particular buy cycle is already open. If the buy cycle called
 6 is already open, this information is returned to the main program as indicated by
 7 block 211. This could either mean that there has been some error or it could be a
 8 notice to the main program to go to block 36 shown in Figure 3. As indicated by block
 9 212, if the buy status is not active, the status is set to active. Next, as indicated by
 10 block 213 the time limit for the buy cycle is set to a value time_t. As previously
 11 indicated the value time_t could either be a fixed value or it could be determined in a
 12 number of ways dynamically.

13

14 At the end of a buy cycle, the subroutine shown in Figure 5 is called. First as
 15 indicated by block 220, a determination of whether the cycle is already open is
 16 made by the subroutine open(). If the buy cycle is not open, no action is taken as
 17 indicated by block 221 and control is returned to the calling program. If the buy cycle
 18 is open, the status is set to inactive as indicated by block 222 and the buy cycle
 19 administrator (which could be another program or a human operator) is notified as
 20 indicated by block 223. At this point the orders that have been entered during the buy
 21 cycle are executed in a conventional manner. That is the products are shipped and
 22 the customer's credit cards are charged.

23

24 Figure 6 shows the subroutine called "watchdog" which operates while a buy cycle is
 25 active. The watchdog process oversees the status of a specific buy-cycle from its
 26 inception until the buy-cycle is either terminated manually or when certain buy-cycle-

1 specific limits have been achieved. As indicated by block 230 and 231 a check is first
2 make to insure that the buy cycle is in fact open. As indicated by blocks 232, 233
3 and 234, the current time and the buy cycle expiration time are obtained and
4 compared. As indicated by block 234 if the if the buy cycle time has ended the sub
5 routine end() is called. Blocks 235, 236 and 237 indicate the if the buy cycle is
6 active, the current number of requests is obtained and compared to the maximum
7 number of requests. If the number of requests exceeds the maximum bnumber
8 allowed, teh buy cycle is ended. If the number of requests is less than the manixum,
9 the subroutine goes to sleep for a period of time as indicated by block 239 and it
10 them repeats. Providing such a sleep period for such a subroutine is conventional.

11
12 Figure 7 shows the subroutine with is used to determine if a buy cycle with a
13 particular ID is open. A conventional data base (not explicitly shown) is used to store
14 the ID's of the open buy cycles. blocks 240 and 241 indicate that the ID of a buy
15 cycle is compared to data in a data base and then a determination is either made the
16 by buy cycle is active (block 242) or a determination is made that the buy cycle is not
17 active (block 243).

18
19 Figure 8 shows the subroutine which is used to determine the number of price slices
20 within a buy-cycle. This subprogram sets the value of the variable "m". As indicated
21 by blocks 250 and 251, the number of rows in the table (see above table 1) for a
22 particular buy cycle ID is obtained and used to set the value of the variable "m".
23 Block 260 and 270 in Figures 9 and 10 shows how the variables "no_items_max"
24 and "no_items_current" are set. Figure 9 shows how the maximum number of items
25 available for the buy-cycle is determined. Figure 10 shows the current number of
26 purchase requests within the buy-cycle is determined. It is noted that the SQL calls

- 1 b) product name and manufacturer logo
- 2 c) product availability
- 3 d) the current price i.e. The is the maximum amount the customer will have to pay
- 4 e) transaction fee which the customer must pay.
- 5 f) subtotal: i.e. the total price for all the items in the cart (shipping and tax to be
- 6 added in the next step)
- 7 g) dollar savings to on the individual product. i.e. the list price minus the current price
- 8 h) total dollar savings on all items in cart
- 9 i) a "remove" box : clicking this box will remove the item from the cart when the page
- 10 is refreshed.
- 11 j) the time and date when this cycle will close.
- 12 k) Toolbar with standard buttons for items such as Help, About Us, Feedback,
- 13 Account info, etc.
- 14 l) Special Buttons for items such as:
- 15 - quantity box
- 16 - change quantity
- 17 after changing the quantity in this box, the customer can press a button to reload
- 18 the page. The refreshed quantity box will show the request quantity. To remove
- 19 the product from the shopping cart, the customer can either check the remove
- 20 box or change the quantity in the shopping cart to zero.
- 21 - Checkout button (with text , "please verify above information and click here to
- 22 continue"
- 23 m) Links to web pages which give:
- 24 - security policy
- 25 - returns and refund policy
- 26 - cycles in progress

1. The first part of the report, "Introduction", discusses the importance of the study and the objectives of the research. It also provides a brief overview of the methodology used in the study.

2. The second part of the report, "Literature Review", discusses the existing literature on the topic. It identifies the gaps in the literature and provides a framework for the study.

3. The third part of the report, "Methodology", describes the research design, data collection, and analysis methods. It includes a detailed description of the sample and the instruments used.

4. The fourth part of the report, "Results", presents the findings of the study. It includes a detailed description of the data and the statistical analysis results.

5. The fifth part of the report, "Conclusion", summarizes the findings of the study and provides recommendations for future research. It also discusses the implications of the study for practice.

8

11 1) New items listed on the site.

13 3) Thank you messages.

16

22

25 Various links can be provided such as links to explain company policy, links to a

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2 A data base program such as a conventional Oracle or Access data base would
3 have stored therein information about the various products being offered for sale.
4 When a new buy cycle for a particular product is initiated, information from this data
5 base would be used to provide information for an appropriate order page such as
6 that shown in Figure 1. Registration information about members would be kept in
7 this same data base. An administrator would update the data base as new products
8 become available or with other product and price changes. Such a data base for
9 providing information for a web site would be conventional.

10

11 The preferred embodiment of the invention described above is only one example of
12 how the present invention can be practiced. It should be understood that various
13 changes in form and detail may be made without departing from the spirit of the
14 invention. The scope of the invention is limited only by the appended claims.

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3 1) A system for facilitating the purchase of products via the internet and which
4 operates in accordance with a buy cycle, said system comprising:

6 describes a product and which lists prices for various quantities of the product,

8 purchasers in a buy cycle and which closes said buy cycle based upon pre-

10 a web server which processes the orders received in a buy cycle.

12 2) The system recited in claim 1 wherein said buy cycle is closed after a fixed
13 amount of time.

15 3) The system recited in claim 2 wherein said web page post the length of said fixed
16 amount of time.

18 4) The system recited in claim 3 wherein said web page posts the amount of time
19 remaining in said fixed amount of time.

21 5) The system recited in claim 1 wherein said buy cycle is closed after a preset
22 number of orders has been received.

24 6) The system recited in claim 1 wherein said buy cycle is closed after the rate at
25 which orders are being received falls below a pre-established rate.

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Abstract:

2 A system and technique which aggregates demand for products or and services on a
3 real time basis. Individual buyers are aggregated into temporary groups. The
4 members of a group can purchase at a volume price. The price paid is based on the
5 number of members in the group. This is done without the members of each
6 temporary group having any interaction with each other and without the members of
7 each temporary group knowing anything about the other members of the temporary
8 group. The price at which products are sold is based upon the number of individuals
9 that join each particular group

Figure 1, (Web Page)

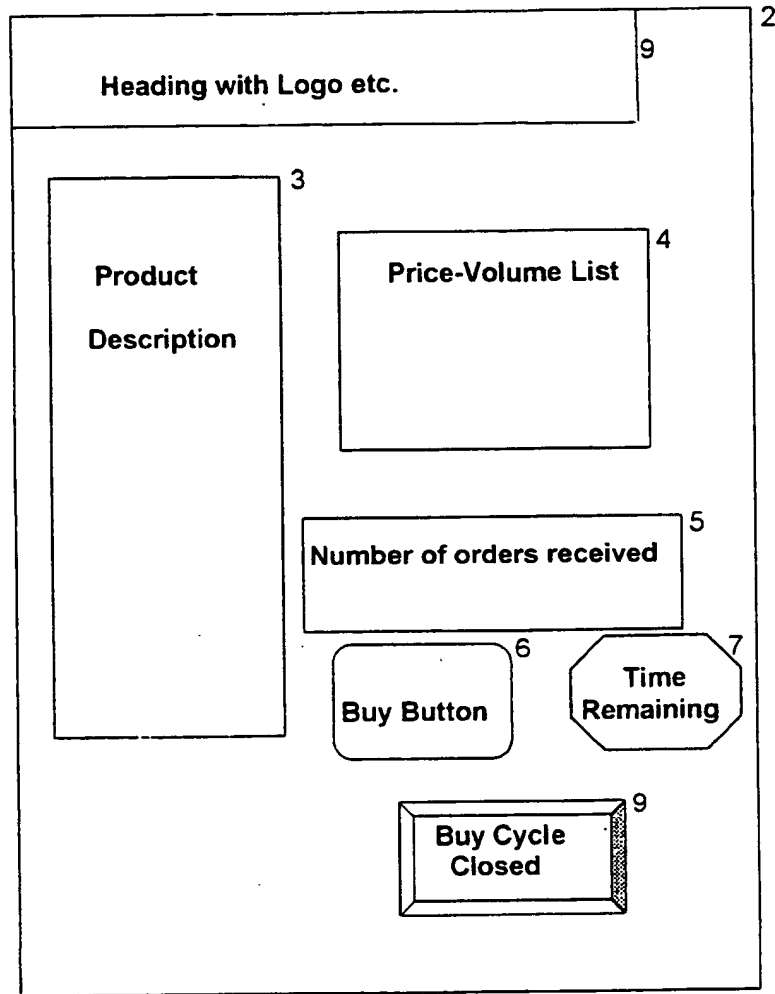
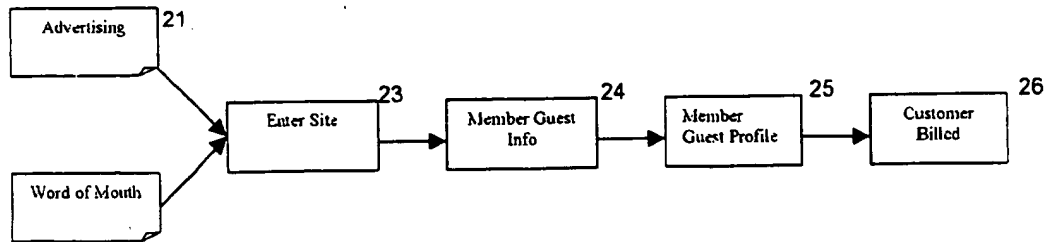
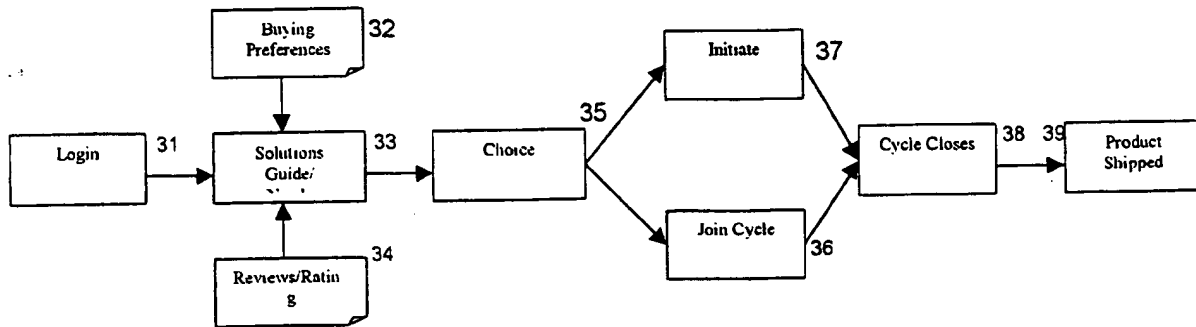


Figure 2

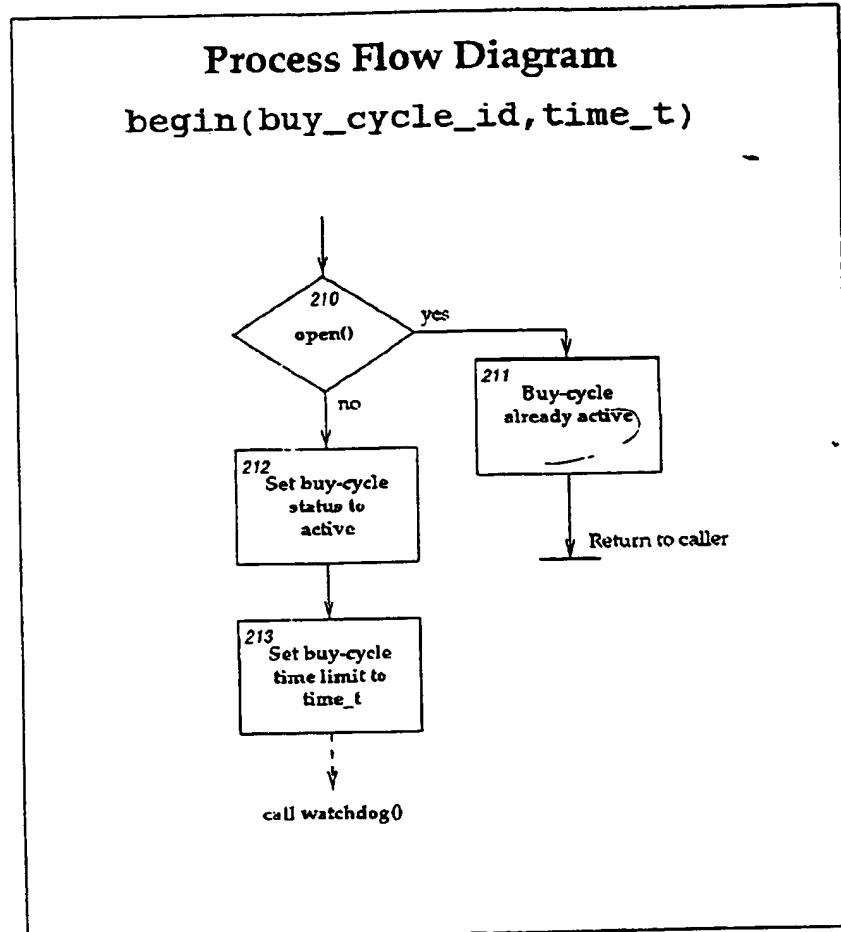


2010-01-01 10:00:00

Figure 3



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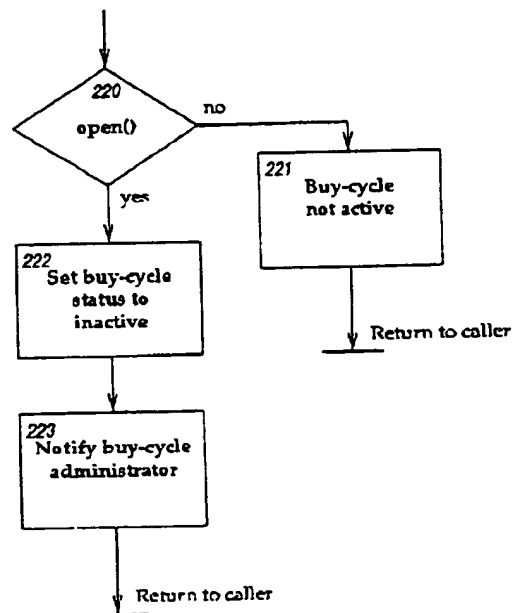
FIGURE 4

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FIG 5

Process Flow Diagram

end(buy_cycle_id)



661020" 661020"

FIG 6

(6)

Process Flow Diagram watchdog(buy_cycle_id)

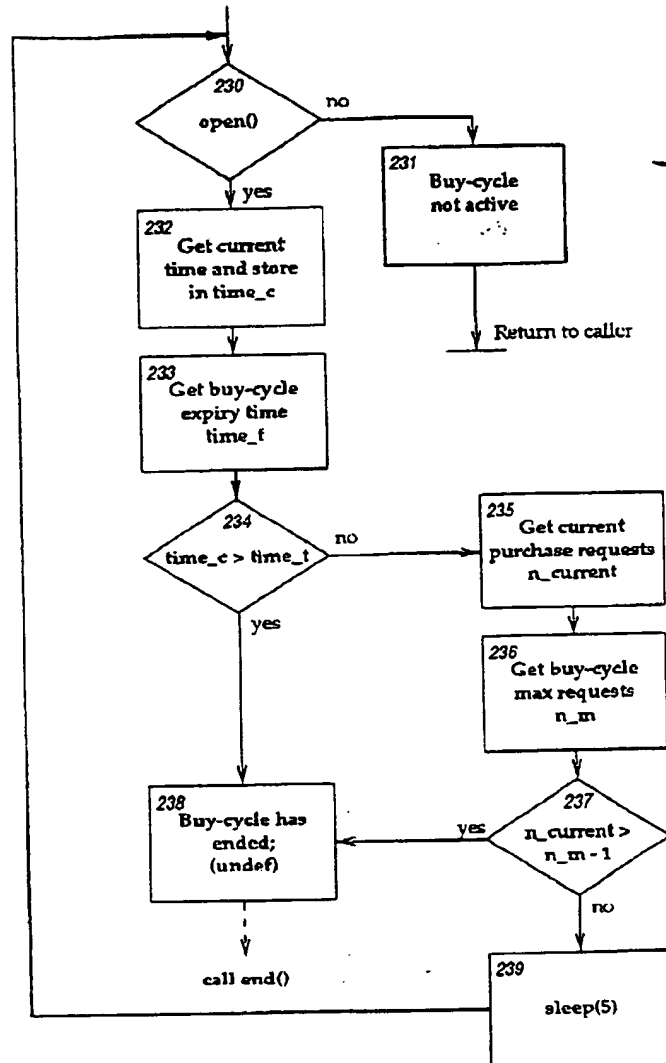
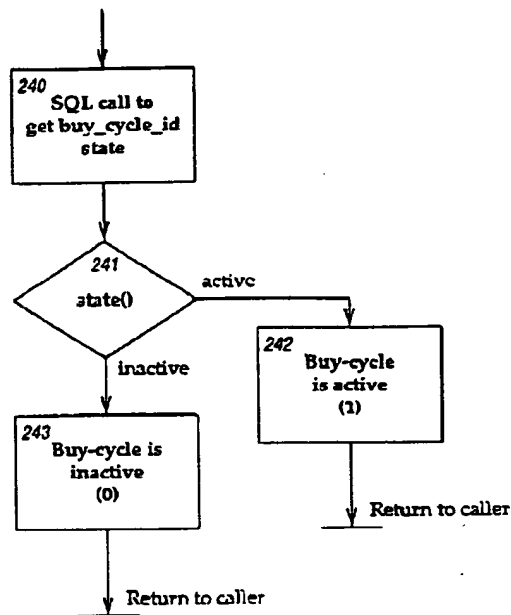


FIG 7

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Process Flow Diagram open(buy_cycle_id)



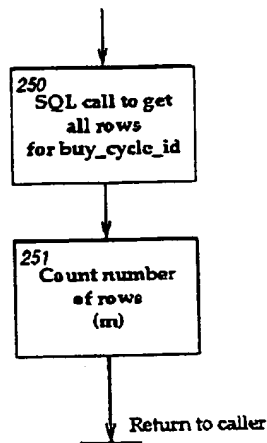
SQL1B100-020100

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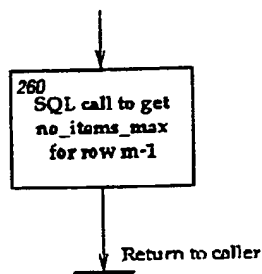
Fig 8

Process Flow Diagram

no_slice(buy_cycle_id)



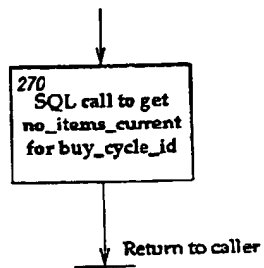
667020-00181703

FIG 9**Process Flow Diagram****max(buy_cycle_id)**

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FIG 10

Process Flow Diagram
current(buy_cycle_id)

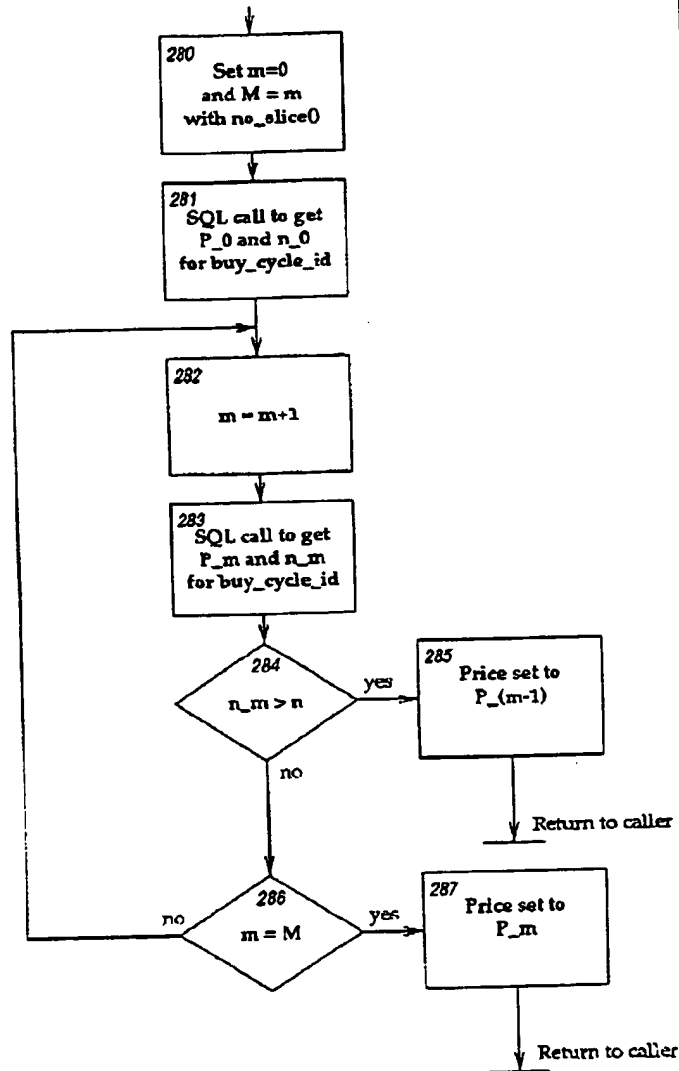


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FIG 11

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Process Flow Diagram price(buy_cycle_id,n)

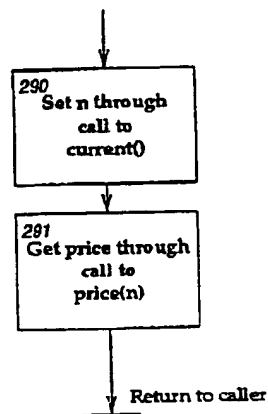


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FIG 12

(12)

Process Flow Diagram
price_current(buy_cycle_id)



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